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HALEOS, INC.
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BLACKSBURG, VA 24060

EXAMINER

KNAUSS, SCOTT A

ART UNIT

PAPER NUMBER

2874

DATE MAILED: 05/29/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/071,871

Applicant(s)

STEINBERG, DAN A.

Examiner

Scott A Knauss

Art Unit

2874

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 10 is/are allowed.
- 6) ☒ Claim(s) 1-3,5,8,9,11-13,15,18,19 is/are rejected.
- 7) ☒ Claim(s) 4,6,7,14,16,17 and 20 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: .

DETAILED ACTION

Information Disclosure Statement

1. The references in the information disclosure statement have been considered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1-3,5,8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,896,481 (Beranek et al).

Regarding claim 1, Beranek discloses a fiber optic device in figs. 3a-d comprising:

a substrate #200 having a groove #212 with a surface

a fiber stop #216 having a second surface

Art Unit: 2874

a bonding material (solder - see col. 6 lines 1-2)

a fiber #220 having a third surface (outer surface) in the groove #212

Beranek does not, however, explicitly disclose a wettability that increases in the direction of the fiber stop.

However, in a previous embodiment, Beranek discloses that a fiber may be only metallized in the area where it is to be bonded (see fig. 1, #40), and it is apparent in fig. 3c that the fiber is only bonded in a second groove #210, thus it would have been obvious to one of ordinary skill in the art to only metallize the region of the fiber placed in second groove #210, in order to bond the that region to the second groove #212 and minimize the amount of metallization needed. If the arrangement of Beranek in fig. 3c is thus modified, it can be considered to have a wettability (i.e. adhesion to liquid solder) that increases in the direction of the fiber stop, since the rest of fiber #220 is unmetallized, and only a region near the fiber stop is in fact metallized.

Regarding claim 2, the bonding material is solder, as previously mentioned.

Regarding claim 3, Beranek, as modified above, discloses selective metallization (metallization of a specific region) on at least the fiber surface.

Regarding claim 5, the metallization on the third surface (the fiber surface) can be considered to be distal from the fiber stop, since it is only present in the region of groove #210.

Regarding claims 8 and 9, the second groove #210 can be considered to be a pit with tapered sides in the substrate, the pit clearly being deeper than groove #212.

Art Unit: 2874

5. Claims 11-13,15,18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beranek et al in view of US 5,717,803 (Yoneda et al).

Regarding claim 11, as stated above regarding claim 1, Beranek discloses a method for locating a fiber stub in a groove in figs. 3a-d, comprising:

- a substrate #200 having a groove #212 with a surface

- a fiber stop #216 having a second surface

- a bonding material (solder - see col. 6 lines 1-2)

- a fiber #220 having a third surface (outer surface) in the groove #212

Beranek does not, however, explicitly disclose a wettability that increases in the direction of the fiber stop, and pressing the fiber against the stop by surface tension between the bonding material and at least one of the first, second and third surfaces.

Yoneda, on the other hand, discloses a similar type of device in figs. 6-8 for locating a fiber in a groove, in which selective metallizations #4,14,16 are self aligned with each other via surface tension of the solder (see col. 7, lines 10-14). Such an arrangement is advantageous because it enables a fiber to be positioned with higher accuracy (col. 7, lines 14-16).

Therefore it would have been obvious to one of ordinary skill in the art to replace the metallized regions in second groove #210 and on fiber #220 with the selective metallized regions #4,14,16 as disclosed by Yoneda in order to provide more accurate positioning of fiber #220 in the fiber device shown in fig. 3c of Beranek. The fiber device as modified by Yoneda would then have increased metallization (and thus increased wettability) in the direction of the fiber stop (since that is the only part of the fiber which

Art Unit: 2874

would be metallized), and the surface tension between the bonding material and the metallized regions would serve to press the fiber against the fiber stop.

Regarding claim 12, the bonding material is solder, as previously mentioned.

Regarding claim 13, Beranek, as modified above, discloses selective metallization on at least the fiber surface.

Regarding claim 15, the metallization on the third surface (the fiber surface) can be considered to be distal from the fiber stop, since it is only present in the region of groove #210.

Regarding claims 18 and 19, the second groove #210 can be considered to be a pit with tapered sides in the substrate, the pit clearly being deeper than groove #212.

Allowable Subject Matter

6. Claim 10 is allowed. The prior art fails to disclose a fiber optic device comprising a substrate, a groove and a fiber stop, further comprising a tapered metallization on the surface of the groove, wherein the area of the metallization increases in the direction of the fiber stop.

7. Claims 4,6,7,14,16,17 and 20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding claims 4,14 and 20, the prior art fails to disclose a fiber optic device and method for located a fiber in a groove as set forth in claims 1 and 11, wherein the groove has a tapered metallization providing increased wettability in the direction of the fiber stop.

Art Unit: 2874

Regarding claims 6,7,16 and 17, the prior art fails to disclose the increased wettability in claims 1 and 11 being provided by the presence of selective metallization on the third surface (fiber surface) and wherein the second surface (fiber stop surface) is also metallized.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US 6,068,776 (Maynard) discloses securing a metallized fiber in a metallized groove.

US 5,784,509 (Yamane et al) discloses a particularly relevant method of attaching a metallized fiber to a metallized groove using solder.

US 5,533,158 (Han et al) discloses methods of metallizing fiber and attaching metallized fibers to metallized grooves.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Scott A Knauss whose telephone number is (703) 305-5043. The examiner can normally be reached on 9-6 Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernick can be reached on (703) 308 - 4819. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Application/Control Number: 10/071,871

Page 7

Art Unit: 2874

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0530.

Scott Knauss

Art Unit 2874

sak
March 27, 2003



HEMANG SANGHAVI
PRIMARY EXAMINER